

PCT

WORLD INTELLECTUAL PROPERTY ORGANIZATION
International Bureau



INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(51) International Patent Classification ³ : B62D 33/06	A1	(11) International Publication Number: WO 84/ 00525 (43) International Publication Date: 16 February 1984 (16.02.84)
--	-----------	--

(21) International Application Number: PCT/US82/00983
(22) International Filing Date: 21 July 1982 (21.07.82)

(71) Applicant (for all designated States except US): INTERNATIONAL HARVESTER COMPANY [US/US]; 401 North Michigan Avenue, Chicago, IL 60611 (US).

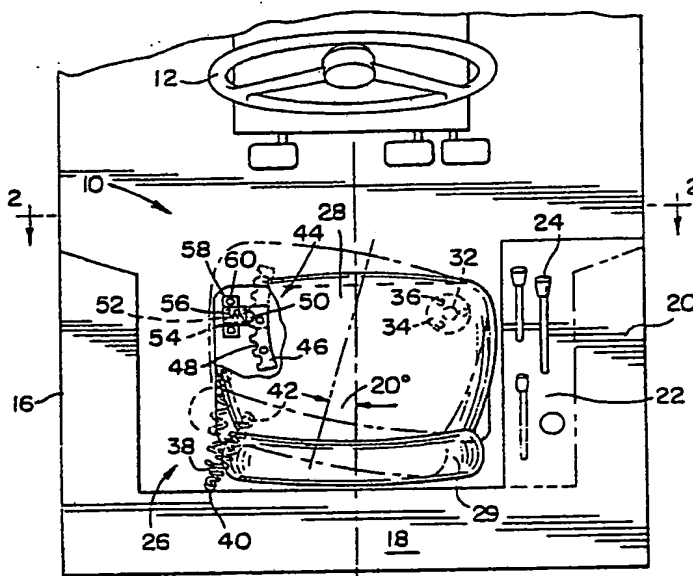
(72) Inventors; and
(75) Inventors/Applicants (for US only) : AMBERG, Arthur, A. [US/US]; 13 Maple Court, Plainfield, IL 60544 (US). PEDERSON, Earl, K. [US/US]; 2022 Briarcliffe, Wheaton, IL 60187 (US).

(74) Agents: PARAD, Boris et al.; 401 North Michigan Avenue, Chicago, IL 60611 (US).

(81) Designated States: AU, DE (European patent), FR (European patent), GB (European patent), JP, US.

Published
With international search report.

(54) Title: VEHICLE SEAT WITH OFFSET SWIVEL



(57) Abstract

A tractor seat (28) with an offset swivel (30) is disposed in a close proximity to the steering wheel (12) and a control console (22) on one side of the vehicle. This seat (28) provides better observation of the field and equipment on the side and behind the tractor (10), thereby improving comfort of vehicle operation, as well as easier access to the steering means (12) and controls on the console (22). The seat (28) is reciprocally movable only toward the control console (22) and thereby permitting to reduce the space clearance thereabout.

FOR THE PURPOSES OF INFORMATION ONLY

Codes used to identify States party to the PCT on the front pages of pamphlets publishing international applications under the PCT.

AT	Austria	LI	Liechtenstein
AU	Australia	LK	Sri Lanka
BE	Belgium	LU	Luxembourg
BR	Brazil	MC	Monaco
CF	Central African Republic	MG	Madagascar
CG	Congo	MR	Mauritania
CH	Switzerland	MW	Malawi
CM	Cameroon	NL	Netherlands
DE	Germany, Federal Republic of	NO	Norway
DK	Denmark	RO	Romania
FI	Finland	SE	Sweden
FR	France	SN	Senegal
GA	Gabon	SU	Soviet Union
GB	United Kingdom	TD	Chad
HU	Hungary	TG	Togo
JP	Japan	US	United States of America
KP	Democratic People's Republic of Korea		

VEHICLE SEAT WITH OFFSET SWIVELBACKGROUND OF THE INVENTION1. Field of the Invention:

5 This invention pertains to a motor vehicle seat and more particularly to a swivel seat for agricultural tractors or the like.

2. Description of the Prior Art:

10 The prior art is replete with various arrangements for motor vehicle seats. Conventional vehicle seats which are in use at present have pivoting seats which have a pivot being disposed in the middle of the seat along the longitudinal axis of the vehicle. This allows equiangular
15 rotation of the seat in both directions. Such a seat arrangement requires sufficient clearances between the seat and surrounding back and side walls of the vehicle cab, or fender wells or consoles, of the vehicle cab. This becomes a design problem in that narrow tire treads necessitate
20 limited width and rear mounted fuel tank or hitch restrict the area behind the seat. This invention may have a particular application for farm tractor operations in which an operator frequently has to look over his shoulder to observe and control performance of pulled behind equipment.
25 This usually involves an uncomfortable twisting of the upper body causing discomfort and medical complications as well as impairing the ability to see the farm field on the side and behind the tractor.

 However, none of the conventionally used motor
30 vehicle seats known to Applicants disclose, teach or suggest the subject invention as disclosed hereinbelow.

SUMMARY OF THE INVENTION

 According to the present invention, a motor
35 vehicle has a control console disposed at least on one side thereof. A vehicle operator's seat is located within limited space clearance thereabout and is in a close



- 2 -

proximity to the control console. The operator's seat comprises a stationary support means which are positioned adjacent to the control console. The support means is pivotally connected at one point to the operator's seat so as to provide an off-set swivel therefor. This swivel facilitates a reciprocal circular displacement of the seat thereabout and is carried out by virtue of an operator's upper body rotation. The swivel permits the operator to turn only toward the console and change his visibility angle parameters.

BRIEF DESCRIPTION OF THE DRAWINGS

Fig. 1 is a top view of the motor vehicle seat arrangement.

DESCRIPTION OF THE PREFERRED EMBODIMENT

Invention may be carried into practice in a number of ways, but one specific embodiment will be described by way of example only.

Referring now to the drawing wherein reference characters designate corresponding parts throughout the view, there is shown in Fig. 1 a motor vehicle, such as an agricultural tractor or the like, cab 10. The illustrated layout of the controls and seat location in motor vehicle cabs is essentially conventional. A steering wheel 12 is disposed along the longitudinal axis of the tractor (not shown) and pedals 14 for functional operations of the vehicle are disposed underneath the steering wheel 12. The cab 10 comprises a side wall 16, back wall 18 and another side wall 20 which has control console 22 mounted thereon. Plurality of controls 24 for various operations of the tractor and its implements 24 are located on the control console 22. The side walls 16 and 20 together with the back wall 18 form a three wall confinement area 26 wherein an operator's seat 28 is disposed. The operator's seat 28 is pivotally joined at 30 with a support post 32 attached to the cab floor by a mount flange 34 and bolts 36.



- 3 -

The reciprocal circular displacement of the seat 28 about the pivot joint or swivel 30 is urged by a pull-back spring 38 to return to its original position. The spring 38 is attached to the back wall 18 by a hook 40
5 extending outwardly therefrom, and by a seat hook 42 extending downwardly from the seat 28. A spring-loaded retention mechanism 44 facilitates a retention of the seat 28 in one of the plurality of positions during the seat rotation. The retention mechanism 44 comprises a plate 46
10 attached to the seat 28 which has recesses 48 forming an undulated or serrated surface on one side of the plate 46. A ball 50 is urged by a spring 52, housed in a sleeve 54 to move into one of these recesses 48. The ball 50 is forced out of the detent recesses by virtue of the operator's
15 efforts to move in or out of the particular position. The sleeve 54 is mounted on a post 56 attached to the floor of the cab by its base plate 58 and bolts 60.

A farm tractor usually has the majority of controls located on one side thereof and most often it is a
20 right hand console. The instant invention would allow the operator to swivel about 20°, as illustrated in Fig. 1, toward the control console 22 for easier access to the controls 24 and afford less body twisting and contortions in order to look rearwardly.

25 The seat could be moved in the same manner toward the left hand side wall, if the swivel is placed closer to that wall. The angle of rotation is also subject to changes. It is more convenient for the operator that the pivot instead of being located at the seat center line is
30 located on the front right hand corner of the seat cushion or slightly to the rear of the operator's right knee. An additional advantage is that the swivel position can be better accomplished as the seat rotates about its swivel and does not encroach upon the control console or the back
35 panel. The lack of controls on the left side wall 16 would help to accept the seat displacement without hamper. Also, the psychological feeling of being disoriented from the



- 4 -

brake pedals when the body is twisted for rearward observation is significantly diminished and tactile contact with controls and pedals remains undisturbed. More command of a steering wheel with the left hand only is provided by the left shoulder being moved closer to the wheel. The movement of the seat out of the confinement area will improve the operator's access to the controls on the console and also by changing the visibility angle parameters will give better view of the field on the side and behind the vehicle. This, in turn, will eliminate an operator's body twisting and contortion caused by over-the-shoulder viewing of the implements attached to the vehicle and also the field behind the operator's seat. It must be understood that further improvements can be installed for better operation of the seat. For instance, a fore-and-aft adjustment slide rails can be installed under the seat, thereby providing to-and-fro movement of the seat from the back wall. This provides a means of pivoting for the desired position and still maintaining fore-and-aft adjustment of the seat. A release lever could be installed on the retention mechanism which would release seat locking by hand or foot. The disclosed ball detent retention mechanism does not require manual use, since it responds to the pressure applied thereto by a body movement. An assist pull-back spring also aids in swiveling about the pivot point by urging the seat to return to its original position.

The foregoing description and drawings merely illustrate the preferred embodiment and the invention is not limited thereto, except insofar as the appended claims are so limited, and so those skilled in the art who have the disclosure before them will be able to make modifications and variations therein without departing from the scope of the invention.

What is claimed is:



- 5 -

1. In a motor vehicle having a control console, at least on one side thereof and a vehicle operator's seat being disposed within the limited space clearance and in a close proximity to said control console, said operator's seat comprising:

stationary support means positioned adjacent to said control console;

said support means being pivotally connected at one point to said operator's seat so as to provide an off-set swivel therefor;

said swivel facilitating a reciprocal circular displacement of said seat thereabout, and being carried out by virtue of an operator's upper body rotation; and

said swivel permitting a vehicle operator to turn only towards said console and change his visibility angle parameters.

2. The invention according to Claim 1, and a pull-back spring attached to said vehicle and said seat and alleviating operator's efforts to return said seat to its original position.

3. The invention according to Claim 1, and a spring-loaded retention mechanism for a seat position fixation with one part thereof being rigidly secured to a motor vehicle cab, and engageable with another part thereof on said seat, thereby providing a plurality of seat positions and corresponding visibility angle parameters.

4. The invention according to Claim 1, and said operator's seat being confined within a three wall area and said control console being one wall therein; and

said seat being able to move out of said area only towards said control console.

5. The invention according to Claim 1, and an angle of said seat circular displacement being equal to approximately 20°.



- 6 -

6. In a motor vehicle, such as an agricultural tractor, having a back wall facing a vehicle steering means and at least one side wall having a console with plurality of controls mounted thereon, an operator's seat arrangement being disposed within said area and comprising:

an off-set swivel mounted on support means rigidly attached to said vehicle;

said swivel being disposed in a close proximity to said console and said steering means, thereby permitting said operator's seat to be reciprocally moveable only towards said console and diminishing space clearance for said seat displacement within said area;

said swivel facilitating a change in visibility angle parameters for a better observation of a field and equipment on the side and behind of said vehicle, thereby eliminating operator's stress and body contortions, while providing better grasp and reach of said steering means and said console.

7. The invention according to Claim 6, and said vehicle comprising a cab with a back wall facing said steering means and another side wall, thereby forming a three-wall confinement area with a limited space clearance around said seat;

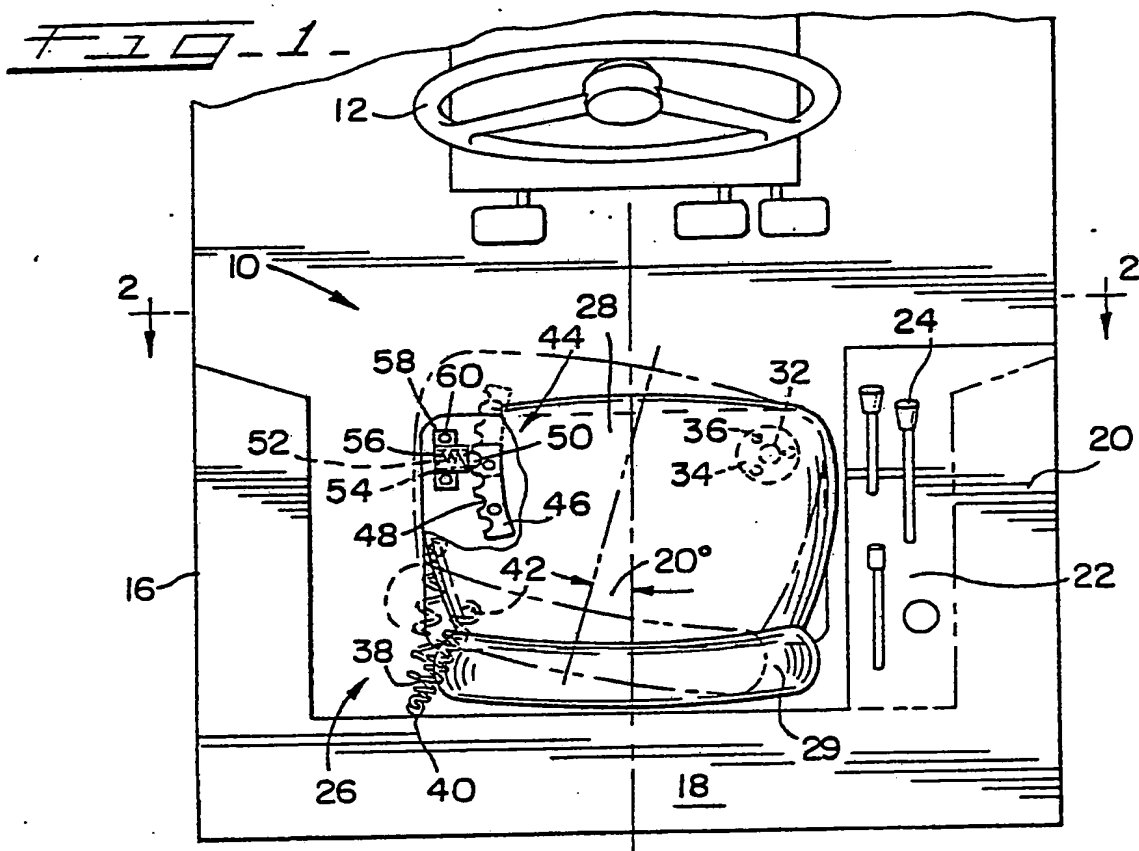
said seat being able to move out of this confinement area only toward said console in a circular movement;

said movement being restrictable at any given angle.

8. The invention according to Claim 6, and spring-loaded retention mechanism attached to said seat and said vehicle facilitating fixation of a seat in a plurality of positions along said seat displacement.



1



SUBSTITUTE SHEET



INTERNATIONAL SEARCH REPORT

International Application No PCT/US82/00983

I. CLASSIFICATION OF SUBJECT MATTER (If several classification symbols apply, indicate all) ³			
According to International Patent Classification (IPC) or to both National Classification and IPC			
U.S. C1, 296/190			
Int. C13, B62D 33/06			
II. FIELDS SEARCHED			
Minimum Documentation Searched ⁴			
Classification System	Classification Symbols		
U.S.	296/190 63 65R	297/240 337 349	248/425
Documentation Searched other than Minimum Documentation to the Extent that such Documents are Included in the Fields Searched ⁵			
III. DOCUMENTS CONSIDERED TO BE RELEVANT ¹⁴			
Category ⁶	Citation of Document, ¹⁵ with indication, where appropriate, of the relevant passages ¹⁷		Relevant to Claim No. ¹⁶
X	U.S., A, 3,893,728, Published 08 July 1975, Holopainen.		1-8
Y	U.S., A, 4,241,893, Published 30 December 1980, Koutsky		2-4, 8
Y	U.S., A, 4,097,085, Published 27 June 1978, Nelson		4, 7
A	U.S., A, 2,777,531, Published 15 January 1957, Erickson		
A	U.S., A, 3,191,400, Published 29 June 1965, Swenson		
<p>¹⁸ Special categories of cited documents:</p> <p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p> <p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"Δ" document member of the same patent family</p>			
IV. CERTIFICATION			
Date of the Actual Completion of the International Search ¹		Date of Mailing of this International Search Report ²	
29 October 1982		02 NOV 1982	
International Searching Authority ³		Signature of Authorized Officer ²⁰	
ISA/US		John A. Carroll 10/23/82 John A. Carroll	